

We will calculate my grade for Dr. Grace's section of practicum class as follows. The constants associated with each term represent how many units of energy were needed to complete the task. Therefore my ending grade will equal the excess energy that I have put into this course.

$$Grade = \int (4x^3 - 12x^2 - 18x - 2922.0625)dx$$

What does x mean? x counts the number of classes in the semester with Dr. Grace. What do the different x terms mean?  $x^3$  = effort put into the class,  $x^2$  = time spent on/in class,  $x$  = homework completed for each class, 2922.0625 = the amount of energy Dr. Grace takes from you every class.

Since x counts the number of classes in the semester with Dr. Grace then it only makes sense to take the integral from when  $x = 0$  to when  $x = 16$ . This will tell us how much extra energy I have put into this class. What is my grade? Lets calculate it out.

$$Grade = \int 4x^3 - 12x^2 - 18x - 2922.0625dx$$

We will take the integral with respect to x

$$Grade = \frac{4x^4}{4} - \frac{12x^3}{3} - \frac{18x^2}{2} - \frac{2922.0625x}{1}$$

We will simplify this as follows

$$Grade = x^4 - 4x^3 - 9x^2 - 2922.0625x$$

We will now substitute 16 and 0 in for x and subtract the two values. Because the integral of our equation has no constants, than we know that when  $x = 0$  then the whole thing is 0. Therefore we only need to find out what the integral is when  $x = 16$

$$Grade = 16^4 - 4(16^3) - 9(16^2) - 2922.0625(16)$$

$$Grade = 65536 - 16384 - 2304 - 46753$$

$$Grade = 46848 - 46753$$

$$Grade = 95$$